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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,462	06/06/2000	John Philipsson	027557-049	9176

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EXAMINER	
TRAN, CON P	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/588,462	PHILIPSSON ET AL.	
	Examiner	Art Unit	
	Con P. Tran	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10 and 12-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10 and 12-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1,3-10, and 12-16** are rejected under 35 U.S.C. 102(b) as being anticipated by Walker et al. U.S. Patent 5,570,423 (cited by Applicants, hereinafter, "Walker' 423).

Regarding **claims 1 and 8,** Walker' 423 teaches a loudspeaker volume range control arrangement for a telephone (3, Fig. 2; loudness level control, Fig. 8B, and respective portions of the specification) having a loudspeaker (1) and a microphone (2), and an echo cancellation system (col. 4, lines 29-36) including an adaptive filter arrangement, the arrangement comprising: means for controlling a volume range (loudness level control, Fig. 8B) of the loudspeaker in dependence on an estimated distance between the loudspeaker and the microphone (d_{ak}), the distance being estimated based on the adaptive filter arrangement coefficients (c_1 to c_N) derived from signals of the loudspeaker and microphone (col. 4, line 44 – col. 5, line 29). Walker'

423 discloses because: filter coefficients c_1 to c_N change quickly with changes in the loudspeaker (1) or microphone (2) position, a coupling signal -includes short-term level of microphone signal (yeff) having time delays which includes acoustic signal propagation time t_{ak} to balance the time delays of the path (i.e., depending on distance; time-delay τ_2 can be determined from the position of the largest coefficient in the register, col. 10, lines 14-16) from loudspeaker (1) to microphone (2; i.e., d_{ak}; col. 6, lines 5-33)- is used in loudspeaker-microphone coupling (dlm; col. 5, lines 37-64) with step width (α) to control filter coefficients c_1 to c_N, amplification value must be lowered proportionally with increasing input level (in compression range), and highered superproportionally with decreasing input level (in expansion range; col. 10, lines 32-35)

Regarding **claim 3**, Walker' 423 further teaches wherein the adaptive filter arrangement is an FIR filter (col. 4, lines 44-54).

Regarding **claims 10 and 12,** method claims 10 and 12 are similar to claims 1 and 3 except for being couched in method terminology; such methods would be inherent when the structure is shown in the reference.

Regarding **claim 4**, Walker' 423 teaches the loudspeaker volume range control arrangement as claimed in claim 1. Walker' 423 further teaches wherein the largest absolute value of the adaptive filter coefficients is determined in order to estimate the

distance between the microphone and the loudspeaker (value of largest coefficients; col. 2, lines 56-61).

Regarding **claims 5-6**, Walker' 423 teaches the loudspeaker volume range control arrangement as claimed in claim 1. Walker' 423 further teaches wherein the filter coefficients are averaged; weighted average in order to estimate the distance between the microphone and the loudspeaker (long-term average level value xlam, Fig. 5; col. 6, lines 12-15).

Regarding **claim 7**, Walker' 423 teaches the loudspeaker volume range control arrangement as claimed in claim 1. Walker' 423 further teaches wherein the difference between the energies of the loudspeaker signal and the microphone signal is used to estimate the distance between the microphone and the loudspeaker (at integrator 5.21 and comparator 6.16; Fig. 8B, col. 10, lines 28-41).

Regarding **claims 13-16,** method claims 13-16 are similar to claims 4-7 except for being couched in method terminology; such methods would be inherent when the structure is shown in the references.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al. U.S. Patent 5,570,423 (hereinafter, "Walker' 423") in view of Romesburg (5,796,819).

Regarding **claim 9**, Walker' 423 teaches a loudspeaker volume range control arrangement for a telephone as claimed in claim 8. However, Walker' 423 does not explicitly disclose a motor vehicle fitted with a telephone as claimed. Walker' 423 teaches a telephone terminal 3 with loudspeaker 1, microphone 2 and a hands-free speaking system 4, which contains an echo canceller (FIG. 2; col. 4, lines 16-18).

Romesburg teaches (see Fig. 8, 9, and respective portions of the specification) a cellular phone mounted in a conventional vehicle (62; col. 14, lines 21-26) in order to provide hand-free operation (see col. 1, lines 6-9).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to apply such teaching of Romesburg into Walker' 423 in order to provide hand-free operation, as suggested by Romesburg in col. 1, lines 6-9.

Response to Arguments

5. Applicant's arguments filed on April 29, 2004 have been fully considered but they are not persuasive.

6. Applicant asserts on pages 3-5, regarding claim 1:

> "The cited passage instead discloses that the distance between the loudspeaker and the microphone is used when calculating the filter coefficients, rather than using the filter coefficients to estimate this distance as defined in amended claim 1. That is, in Walker '423 the distance used must be known in order to calculate the coefficients. This is evident from Equation 1, which requires knowledge of t_{ak} (See col. 3, ll.1-17 to determine the filter coefficients. The distance d_{ak} In Walker'423 represents the distance between the loudspeaker and microphone, and simply corresponds to the minimum acoustic signal propagation time t_{ak} (see col. 4, ll. 47-52). Accordingly, the distance between the loudspeaker and microphone is an input parameter for the algorithm used to calculate the filter coefficients according to Equation 1 of Walker '423. Therefore, in Walker '423, the distance between the loudspeaker and the microphone is not estimated based on adaptive filter arrangement coefficients derived from signals of the loudspeaker and microphone, as defined in claim 1. In fact, just the opposite is true. One must know the distance/propagation time in order to calculate the coefficients in the first place in Walker '423."

Examiner respectfully disagrees. As presented in the Office Action above, Walker '423 uses acoustic signal propagation time t_{ak} to balance distance d_{ak} between loudspeaker and microphone, an unknown variable (i.e., changes in the loudspeaker 1 or microphone 2 position; col. 5, lines 37-41; time-delay τ_2 can be determined from the position of the largest coefficient in the register, col. 10, lines 14-16).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran, whose telephone number is (703) 305-2341. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service Office at telephone number (703) 306-0377.

cpt CPJ
July 8, 2004

MINSUN OH HARVEY
PRIMARY EXAMINER